

PATENT COOPERATION TREATY

09180943

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

United States Patent and Trademark
Office
(Box PCT)
Crystal Plaza 2
Washington, DC 20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year)

18 December 1997 (18.12.97)

International application No.

PCT/US97/09090

Applicant's or agent's file reference

AD6506

International filing date (day/month/year)

16 May 1997 (16.05.97)

Priority date (day/month/year)

24 May 1996 (24.05.96)

Applicant

NOZAKI, Masahiro

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

05 December 1997 (05.12.97)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

H. Zhou

Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

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**NOTIFICATION OF DEFECTS IN
THE INTERNATIONAL APPLICATION**

(PCT Articles 3(4)(i) and 14(1) and Rule 28.1)

From the INTERNATIONAL BUREAU

To:

United States Patent and Trademark
Office
(Box PCT)
Crystal Plaza 2
Washington, DC 20231
ETATS-UNIS D'AMERIQUE

in its capacity as receiving Office .

Date of mailing (*day/month/year*)
07 July 1997 (07.07.1997)

International application No.
PCT/US97/09090

International filing date (*day/month/year*)
16 May 1997 (16.05.1997)

Applicant
E. I. DU PONT DE NEMOURS AND COMPANY

The International Bureau hereby calls the attention of the receiving Office to the defects in the international application, which are specified on the attached



Annex A



Annex B



Annex C

Additional observations, if necessary:

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer

H. Zhou

Telephone No. (41-22) 338.83.38

ANNEX A TO FORM PCT/IB/313

International Application No.
PCT/US97/09090

The International Bureau has found the following defects in the international application:

1. As to **signature*** of the international application (Rules 4.15 and 90.4), the request:

- a. ☐ is not signed.
- b. ☐ is not signed by all the applicants.
- c. ☐ is not accompanied by the statement referred to in the check list in Box No. VIII of the request explaining the lack of the signature of an applicant for the designation of the United States of America.
- d. ☐ is signed by what appears to be an agent/common representative but
 - ☐ the international application is not accompanied by a power of attorney appointing him.
 - ☐ the power of attorney accompanying the international application is not signed by all the applicants.
- e. ☐ other (specify):

* All applicants must sign, including inventors if they are also applicants (e.g. where the United States of America is designated).

2. As to indications concerning the **applicant**, the request (Rules 4.4 and 4.5):

- a. ☐ does not properly indicate the applicant's name (specify):
- b. ☐ does not indicate the applicant's address.
- c. ☐ does not properly indicate the applicant's address (specify):
- d. ☒ does not indicate the applicant's nationality.
- e. ☒ does not indicate the applicant's residence.
- f. ☐ other (specify):

3. As to the **language** of some parts of the international application (Rule 12.1):

- a. ☐ the request is not in (one of) the admitted language(s) which is (are): English
- b. ☐ the text matter of the drawings is not in (one of) the admitted language(s) which is (are): English
- c. ☐ the abstract is not in (one of) the admitted language(s) which is (are): English

4. The **title** of the invention:

- a. ☐ is not indicated in Box No. I of the request (Rule 4.1).
- b. ☐ is not indicated at the top of the first sheet of the description (Rule 5.1(a)).
- c. ☐ as appearing in Box No. I of the request is not identical with the title heading the description (Rule 5.1(a)).

PATENT COOPERATION TREATY

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference AD6506	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US 97/ 09090	International filing date(<i>day/month/year</i>) 16/05/1997	(Earliest) Priority Date (<i>day/month/year</i>) 24/05/1996
Applicant E. I. DU PONT DE NEMOURS AND COMPANY et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (see Box I).

2. ☐ Unity of invention is lacking (see Box II).

3. ☐ The international application contains disclosure of a nucleotide and/or amino acid sequence listing and the international search was carried out on the basis of the sequence listing

☐ filed with the international application.

☐ furnished by the applicant separately from the international application,

☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ Transcribed by this Authority

4. With regard to the title, ☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this International Search Report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is:

Figure No. _____ ☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 97/09090

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 C08L77/10 C08K3/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 C08L C08K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 561 631 A (MITSUI PETROCHEMICAL IND) 22 September 1993 see page 36, line 34 - line 53; claim 1; examples 1-7 ---	1,2,4
X	US 5 436 294 A (DESIO GLENN P ET AL) 25 July 1995 see column 5, line 32 - line 41 see column 12, line 12 - line 55; claims 1-10; examples 1-3 ---	1,2,4
X	EP 0 368 281 A (MITSUI PETROCHEMICAL IND) 16 May 1990 see page 6, line 19 - line 46; claim 1; example 1 --- -/--	1,2,4

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

26 August 1997

Date of mailing of the international search report

11.09.97

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+ 31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+ 31-70) 340-3016

Authorized officer

Hoffmann, K

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 97/09090

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 292 805 A (PASCHKE EDWARD E ET AL) 8 March 1994 see claims 1-9; examples 1-37 -----	1-4

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 97/09090

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0561631 A	22-09-93	JP 6049301 A	22-02-94
		CA 2091961 A	20-09-93

US 5436294 A	25-07-95	US 5292805 A	08-03-94
		CA 2096910 A	30-11-93
		EP 0572266 A	01-12-93
		JP 6057058 A	01-03-94
		US 5387645 A	07-02-95
		CA 2051767 A	21-03-92
		EP 0477027 A	25-03-92
		JP 4270761 A	28-09-92

EP 0368281 A	16-05-90	CA 2002368 A	08-05-90
		JP 3007760 A	14-01-91
		JP 2229855 A	12-09-90

US 5292805 A	08-03-94	CA 2096910 A	30-11-93
		EP 0572266 A	01-12-93
		JP 6057058 A	01-03-94
		US 5436294 A	25-07-95

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

REC'D
JUL 14 1998
JAF

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Rule 71.1)

To:

FORSTNER, James A.
E.I. DU PONT DE NEMOURS AND COMPANY
Legal/Patent Records Center
1007 Market Street
Wilmington, Delaware 19898
ETATS-UNIS D'AMERIQUE

Date of mailing
(day/month/year)

03.07.98

Applicant's or agent's file reference
AD6506

IMPORTANT NOTIFICATION

International application No.
PCT/US97/09090

International filing date (day/month/year)
16/05/1997

Priority date (day/month/year)
24/05/1996

Applicant

E.I. DU PONT DE NEMOURS AND COMPANY et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/



European Patent Office
D-80298 Munich
Tel. (+49-89) 2399-0, Tx: 523656 epmu d
Fax: (+49-89) 2399-4465

Authorized officer

Aperribay, I

Tel. (+49-89) 2399-8154

TRB NOTED

7-12-98



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference AD6506	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (PCT/IPEA/416)	
International application No. PCT/US97/09090	International filing date (day/month/year) 16/05/1997	Priority date (day/month/year) 24/05/1996
International Patent Classification (IPC) or national classification and IPC C08L77/10		
Applicant E.I. DU PONT DE NEMOURS AND COMPANY et al.		



1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 05/12/1997	Date of completion of this report 03.07.98
Name and mailing address of the IPEA/  European Patent Office D-80298 Munich Tel. (+49-89) 2399-0, Tx: 523656 epmu d Fax: (+49-89) 2399-4465	Authorized officer Hoffmann, K Telephone No. (+49-89) 2399-8419 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US97/09090

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

Description, pages:

1-12 as originally filed

Claims, No.:

1-3 as amended under Article 19

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☒ the claims, Nos.: 4
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims
	No:	Claims 1-3
Inventive step (IS)	Yes:	Claims
	No:	Claims 1-3
Industrial applicability (IA)	Yes:	Claims 1-3
	No:	Claims

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US97/09090

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US97/09090

1. The following documents contain relevant subject-matter:

D1: EP 0 561 631 A,
D2: US 5 436 294 A, *Desio*
D3: EP 0 368 281 A and
D4: US 5 292 805 A. *Bachle*

2. Documents D1 to D3 disclose a composition of an aromatic polyamide resin having a melting point of at least 290°C and an impact modifier, see D1 (claim 1, examples 1-7), D2 (claims 1-10, examples 1-3, column 5, lines 32-41), D3 (claim 1, example 1). Furthermore these documents disclose the presence of an inorganic filler in the composition, see D1 (page 36, lines 34-53), D2 (column 12, lines 12-55), D3 (page 6, lines 19-46). The quantities of the filler and the impact modifier fulfil the requirements according to present claim 1.

This disclosure of documents D1 to D3 renders the subject-matter of claims 1 and 3 not novel.

3. Document D4 discloses an aromatic polyamide resin composition comprising an aromatic polyamide having a melting point of at least 290°C, an inorganic filler and an impact modifier, see claims 1-9 and examples 1-37. The compositions of these examples certainly will have a melt viscosity of 350 Pa.sec or less according to present claim 2. Therefore the subject-matter of claims 1 to 3 is not novel in comparison to the disclosure of document D4.

*no impact
modifier in
US 5 292 805*

why?

PCTWORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : C08L 77/10, C08K 3/00	A1	(11) International Publication Number: WO 97/44395 (43) International Publication Date: 27 November 1997 (27.11.97)
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(21) International Application Number: PCT/US97/09090

(22) International Filing Date: 16 May 1997 (16.05.97)

(30) Priority Data:
8/130342 24 May 1996 (24.05.96) JP(71) Applicant (for all designated States except US): E.I. DU PONT
DE NEMOURS AND COMPANY [US/US]; 1007 Market
Street, Wilmington, DE 19898 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): NOZAKI, Masahiro [-/JP];
East Suzumi B-305, 342-1, Hiramatsu-honcho, Utsunomiya-
shi, Tochigi-ken 321 (JP).(74) Agent: FORSTNER, James, A.; E.I. du Pont de Nemours and
Company, Legal/Patent Records Center, 1007 Market Street,
Wilmington, DE 19898 (US).(81) Designated States: CA, US, European patent (AT, BE, CH,
DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT,
SE).**Published***With international search report.
With amended claims.*(54) Title: AROMATIC POLYAMIDE RESIN COMPOSITION HAVING EXCELLENT BALANCE OF TOUGHNESS AND STIFF-
NESS

(57) Abstract

An aromatic polyamide resin composition is obtained by blending an inorganic filler and an impact modifier. The ratio of the weight M of the inorganic filler to the weight T of the impact modifier is preferably $2.0 \leq M/T \leq 6.5$. The aromatic polyamide resin has a melting point of at least 290 °C, and preferably a glass transition temperature of at least 60 °C. The composition has an excellent balance of toughness and stiffness.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
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BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon			PL	Poland		
CN	China	KR	Republic of Korea	PT	Portugal		
CU	Cuba	KZ	Kazakstan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

Claims

1. An aromatic polyamide resin composition comprising an aromatic polyamide resin having a melting point of at least 290°C, an inorganic filler, and an impact modifier wherein the composition has a ratio of the weight M of said inorganic filler to the weight T of said impact of $2.0 \leq M/T \leq 6.5$.
2. An aromatic polyamide resin composition of claim 1 wherein the composition has a melt viscosity, measured with a capillary rheometer at a shear rate of 1000/sec and a process temperature 20-30°C higher than the melting point of said aromatic polyamide resin, of 350 Pa·sec or less.
3. An aromatic polyamide resin composition of claim 1-2 wherein said aromatic polyamide resin has a glass transition temperature of at least 60°C.

AMENDED CLAIMS

[received by the International Bureau on 7 November 1997 (07.11.97);
original claims 1-4 replaced by new claims 1-3 (1 page)]

1. An aromatic polyamide resin composition comprising an aromatic polyamide resin having a melting point of at least 290°C, an inorganic filler, and an impact modifier wherein the composition has a ratio of the weight M of said inorganic filler to the weight T of said impact of $2.0 \leq M/T \leq 6.5$.

2. An aromatic polyamide resin composition of claim 1 wherein the composition has a melt viscosity, measured with a capillary rheometer at a shear rate of 1000/sec and a process temperature 20-30°C higher than the melting point of said aromatic polyamide resin, of 350 Pa·sec or less.

3. An aromatic polyamide resin composition of claim 1-2 wherein said aromatic polyamide resin has a glass transition temperature of at least 60°C.

1. An aromatic polyamide resin composition comprising an aromatic polyamide resin having a melting point of at least 290°C, an inorganic filler, and an impact modifier wherein the composition has a ratio of the weight M of said inorganic filler to the weight T of said impact of $2.0 \leq M/T \leq 6.5$.

5 T of said impact of $2.0 \leq M/T \leq 6.5$. *flex*

2. An aromatic polyamide resin composition of claim 1 wherein the composition has a melt viscosity, measured with a capillary rheometer at a shear rate of 1000/sec and a process temperature 20-30°C higher than the melting point of said aromatic polyamide resin, of 350 Pa·sec or less.

10 3. An aromatic polyamide resin composition of claim 1-2 wherein said aromatic polyamide resin has a glass transition temperature of at least 60°C.

$\frac{a^2}{A^2}$
 $\frac{a^2}{D^2}$

Section 6

consent
A17

Claims

1. An aromatic polyamide resin comprising an aromatic polyamide resin having a melting point of at least 290°C, an inorganic filler, and an impact
5 modifier.
2. An aromatic polyamide resin composition of Claim 1 having a ratio of the weight M of said inorganic filler to the weight T of said impact modifier of $2.0 \leq M/T \leq 6.5$.
3. An aromatic polyamide resin composition of Claims 1-2 wherein the
10 composition has a melt viscosity, measured with a capillary rheometer at a shear rate of 1000/sec and a process temperature 20-30°C higher than the melting point of said aromatic polyamide resin, of 350 Pa·sec or less.
4. An aromatic polyamide resin composition of Claims 1-3 wherein said
15 aromatic polyamide resin has a glass transition temperature of at least 60°C.

AMENDED CLAIMS

[received by the International Bureau on 7 November 1997 (07.11.97);
original claims 1-4 replaced by new claims 1-3 (1 page)]

1. An aromatic polyamide resin composition comprising an aromatic polyamide resin having a melting point of at least 290°C, an inorganic filler, and an impact modifier wherein the composition has a ratio of the weight M of said inorganic filler to the weight T of said impact of $2.0 \leq M/T \leq 6.5$.
2. An aromatic polyamide resin composition of claim 1 wherein the composition has a melt viscosity, measured with a capillary rheometer at a shear rate of 1000/sec and a process temperature 20-30°C higher than the melting point of said aromatic polyamide resin, of 350 Pa·sec or less.
3. An aromatic polyamide resin composition of claim 1-2 wherein said aromatic polyamide resin has a glass transition temperature of at least 60°C.